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Exmouth Gulf Prawn Trawl Fishery

4th Surveillance Report

Prepared for the MG Kailis Group of Companies

Certificate No: **MSC-F-30006**

MRAG Americas, Inc.
June 2020

Conformity Assessment Body (CAB)	MRAG Americas, Inc.
Assessment team	Richard Banks, Kevin McLoughlin and Mihaela Zaharia
Fishery client	MG Kailis Group of Companies
Assessment Type	Fourth Surveillance

Contents

Glossary

BMSY	Biomass at Maximum Sustainable Yield
BRD	Bycatch Reduction Device
CMOP	Crew Member Observer Program
CPL	Carnarvon/Peron line
CR	Catch Rate
CVI	Climate Vulnerability Index
DPIRD	Department of Primary Industries and Regional Development
EGPMF	Exmouth Gulf Prawn Managed Fishery
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERA	Ecological Risk Assessment
ESD	Ecologically Sustainable Development
ETP	Endangered, Threatened and Protected species
MSC	Marine Stewardship Council
MSY	Maximum Sustainable Yield
NCWHAC	Ningaloo Coast World Heritage Advisory Committee
SBCMF	Shark Bay Crab Managed Fishery
SBPMF	Shark Bay Prawn Managed Fishery
SRR	Stock Recruitment relationship
TAC	Total Allowable Catch
TACC	Total Allowable Commercial Catch
TED	Turtle Excluder Device
TEP	Threatened, Endangered and Protected (same as ETP)
UoA	Unit of Assessment
UoC	Unit of Certification
WAFIC	Western Australia Fisheries Industry Council

1 Executive summary

MRAG Americas confirms that this fishery continues to meet the MSC Fisheries Standard and shall remain certified.

2 Report details

2.1 Surveillance information

Table 1. Surveillance information

1	Fishery name	
	Exmouth Bay Prawn Trawl Fishery	
2	Surveillance level and type	
	Surveillance level4, remote surveillance	
3	Surveillance number	
	1st Surveillance	
	2nd Surveillance	
	3rd Surveillance	
	4th Surveillance	X
	Other (expedited etc.)	
4	Team leader	
	Richard Banks	
5	Team member	
	Kevin McLoughlin and Mihaela Zaharia A discussion between team members regarding conflict of interest and biases was held via telephone conference call and none were identified.	
6	Audit/review time and location	
	26 May 2020, remote The MSC Covid-19 Derogation allows CABs to conduct assessment site visits as off-site visits for the duration of the 6-month derogation period (27th March 2020 – 27th September 2020).	
7	Assessment and review activities	
	The surveillance reviewed changes in science and management.	

2.2 Background

The Exmouth Gulf Prawn Managed Fishery (EGPMF) was certified in October 2015. This certification covered brown tiger prawn and western king prawn. Blue endeavour prawn was added to the certificate on 26 February 2019 following a scope extension.

The annual cycle of operation for the EGPMF is dynamic and depends on the strength and timing of prawn recruitment. The harvest strategy adopted for the EGPMF aims to allow prawns to reach optimal market sizes before fishing commences, as well as to provide protection to the spawning stocks through temporal closures of key spawning areas throughout the season.

Historical catch and effort data for the fishery are shown in Figure 1 and Table 2.

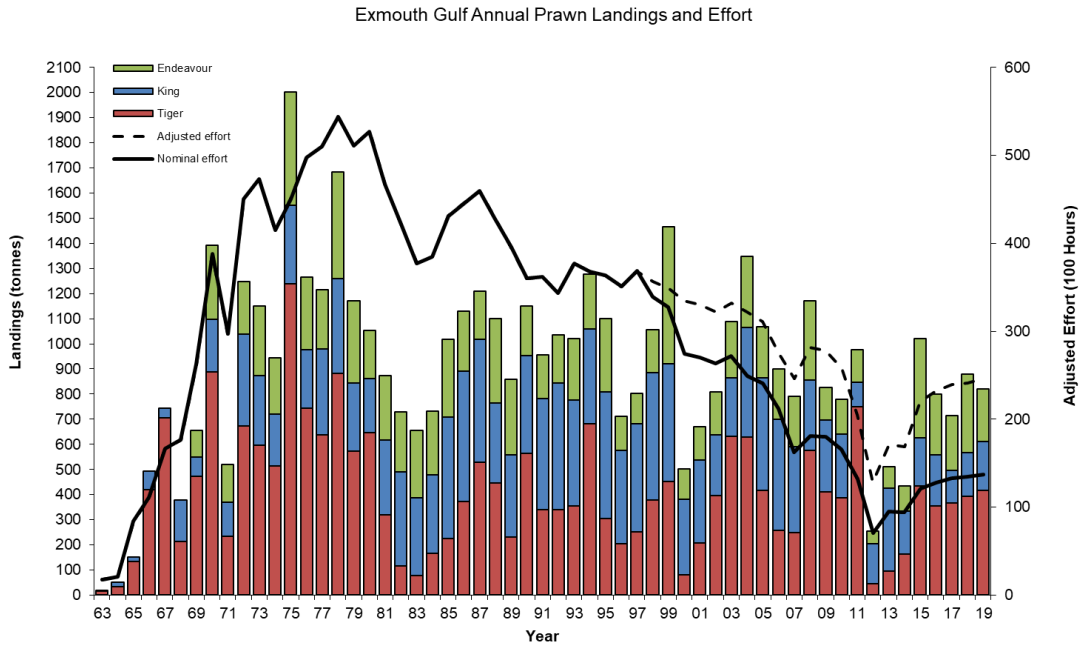

Figure 1. Annual prawn landings (t) and fishing effort for the Exmouth Gulf Prawn Managed Fishery 1963-2019 (Kangas et al. 2020).

Table 2. Catch and effort of major prawn species in the EGPMF between 2002 and 2019 (2019 data are preliminary).

Year	Tiger		Western king		Blue endeavor		Banana catch (t)	Total prawn (t)	Nominal effort (hrs)	Adjusted effort (hrs)	No. boats
	Catch (t)	Catch rate (kg/hr)	Catch (t)	Catch rate (kg/hr)	Catch (t)	Catch rate (kg/hr)					
2002	395	12.3	244	7.6	170	5.3		809	26358	32186	13
2003	633	19.1	231	7.0	225	6.8		1089	27161	33167	13
2004	629	19.6	436	13.6	282	8.8	0	1347	24874	32165	12
2005	416	13.4	449	14.4	203	6.5		1068	24039	31097	12
2006	258	9.4	442	16.1	199	7.2		899	21184	27511	12
2007	248	10.1	342	13.9	200	8.1		790	16278	24650	9
2008	576	20.5	279	9.9	315	11.2	0	1170	18123	28119	9
2009	412	14.8	284	10.2	132	4.8	1	829	17971	27851	9
2010	388	15.0	254	9.8	138	5.3	0	779	16606	25787	9
2011	749	36.5	97	4.7	130	6.3	3	979	13220	20532	9
2012	46	3.6	157	12.3	51	3.9	33	288	7042	12814	6
2013	95	5.6	331	19.3	85	5.0	74	585	9503	17124	6
2014	162	9.6	171	10.1	101	6.9	29	463	9433	16841	6
2015	433	19.7	192	8.7	397	18.0	46	1067	12106	21983	6
2016	356	15.4	201	8.7	244	10.5	21	822	12803	23166	6
2017	366	15.3	130	5.4	217	9.0	0	713	13285	23967	6

2018	392	16.2	174	7.2	313	13.0	1	880	13444	24131	6
2019	418	17.0	194	7.9	208	8.5	1	821	13707	24599	6

2018 season overview

The total 2018 landings of prawns were 880 t; brown tiger prawn landings were 390 t, western king prawns 174 t and blue endeavour prawns 312 t. The 2018 fishing season official opening and closing dates were set at 3 April and 17 December, providing a possible 218 nights fishing. Actual fishing took place from 16 April to 12 December (200 nights).

Recorded landings of by-product were; 20.4 t of coral prawns (several species), 2.8 t of bugs (*Thenus orientalis*), 2.2 t of squid (several species), 7.5 t of cuttlefish (several species), 0.9 t of blue swimmer crab (*Portunus armatus*), 0.3 t of octopus (several species) and 1.2 t of mantis shrimp (several species).

2019 season overview

The total 2019 landings of prawns were 821 t; brown tiger prawn landings were 418 t, western king prawns 194.2 t and blue endeavour prawns 208.4 t (Kangas et al. 2020). The 2019 fishing season official opening and closing dates were set at 2 April and 10 December, providing a possible 212 nights fishing. This is a flexible arrangement and the season actually commenced on 14 April and finished on 8 December.

Recorded landings of by-product were; 21.1 t of coral prawns, 2.3 t of bugs, 1.8 t of squid, 5.8 t of cuttlefish, 6.2 t of blue swimmer crab and 0.4 t of octopus, which all met the target reference levels within the harvest strategy. No mantis shrimp were landed in 2019.

Following an assessment against the annual operation performance indicators in the harvest strategy, no changes to the season arrangements are predicted for 2020.

2.3 Target Stock Update

The fishery is managed in accordance with the Exmouth Gulf Prawn Managed Fishery Harvest Strategy 2014-2019 to achieve the long and short term management objectives for the fishery (DoF 2014). The Harvest Strategy outlines performance indicators, reference levels and harvest control rules designed to maintain the prawn resources at target levels and to achieve the management objectives for the fishery.

The status of the stocks of brown tiger prawns and western king prawns is assessed annually using a weight-of-evidence approach that considers all available information about the stock, primarily based on monitoring of fishery-independent indices of recruitment and spawning stock levels relative to specified reference points. Although these abundance indices represent key indicators for the stocks, other information collected throughout the season (e.g. commercial catches, effort, grade categories and environmental data) is also evaluated to provide insight on, for example, environmental factors affecting prawn recruitment (Kangas et al. 2017).

At certification, a condition was set for each of western king prawn and brown tiger prawn for PI 1.1.2 requiring the development of target reference points consistent with B_{MSY} or a surrogate. The Department of Primary Industries and Regional Development (DPIRD) scientists have developed several assessment approaches to address this issue (DPIRD-EGPMF 2019a, DPIRD-EGPMF 2019b and DPIRD-EGPMF 2019c). The conditions were closed at the 3rd surveillance of the fishery and the assessment approaches are summarized in the report of that surveillance (Banks et al. 2019). The performance of the fishery against the requirements of the harvest strategy since the 3rd surveillance are summarized below.

Brown tiger prawn

<u>Performance against harvest strategy</u>

The 2018 and 2019 brown tiger prawn landings (392 t and 418 t respectively) were within with the normal catch range (250-550 t). These landings were within the predicted range (i.e. 290 to 440 t for 2018 and 370 to

550 t for 2019). The 2018 and 2019 adjusted annual CPUE values of 16.2 and 17.0 kg/hr, respectively, for brown tiger prawn were well above the reference catch rate of 10 kg/hr.

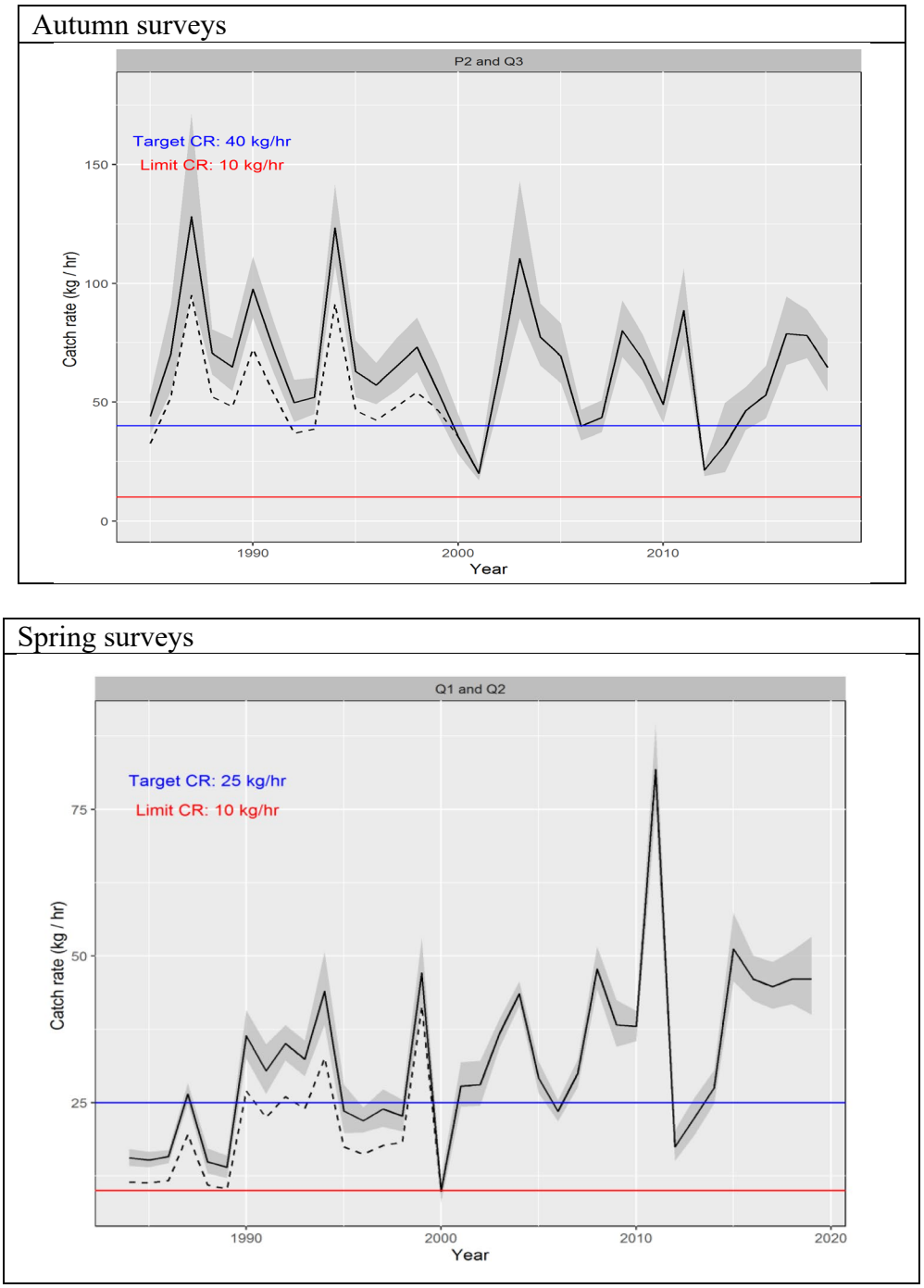

Figure 2. Fishery-independent mean survey catch rates of brown tiger prawns in Exmouth Gulf recorded for recruitment surveys conducted in autumn (March/April) in the fishing grounds P2 and Q3, and spawning stock surveys in spring (August, September and October) in fishing grounds Q1 and Q2. The dashed line prior 2000 indicates twin gear catch rates that were documented historically but have been adjusted to represent quad gear catch rate incorporating gear efficiency and increased net spread. The target and limit reference lines from the harvest strategy are shown. The shaded areas represent the 95% confidence interval. Source DPIRD-EGPMF 2019a and Kangas et al. 2020.

The management objective for brown tiger prawns is to maintain the spawning biomass above the historically determined biological reference points, expressed as catch rates based on spawning stock surveys. At present

the target reference point is 25 kg/hr and the limit reference point is 10 kg/hr. Catch rates are monitored daily and fishing ceases if the target catch rate is reached within the key spawning area. Fishing ceases in early August irrespective of the catch rates. The spawning stock indices have been well above the target since 2013 (44.8 kg/hr in 2017; 46.3 kg/hr in 2018 and 46.2 kg/hr in 2019) (Figure 2).

Figure 2 shows the in recruitment index for brown tiger prawns from fishery-independent surveys since 1983. There is no evidence of a declining trend, however there are years when the recruitment index has fallen below the target level, which has been attributed to negative impacts on structured habitats in nurseries (cyclone and heatwave). In 2017, 2018 and 2019 the brown tiger prawn recruitment index was well above the target level (45.8 kg/hr in 2019) ().

Using the spring survey catch rates (in year t) as a measure of spawning stock, and the autumn survey catch rates (in year t+1) as a measure of recruitment Figure 3 shows the available stock-recruitment data. The data indicate that 1) relatively low recruitment can occur even when the spawning stock is relatively high but that 2) there is no apparent stock-recruit relationship when the spawning index is above ~10 kg/h (i.e. limit reference point).

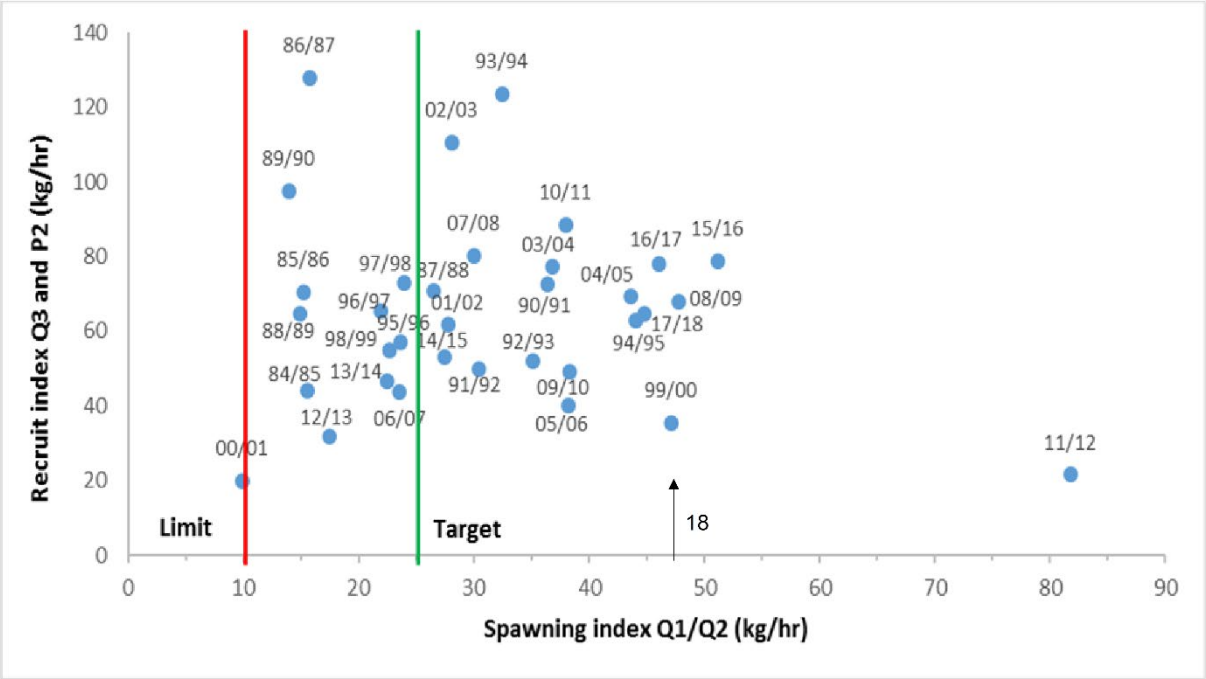

Figure 3. Relationship between fishery-independent survey catches rates in spring (August to October) in areas Q1 and Q2 in year t, as a measure of spawning stock abundance, and fishery-independent survey catch rates in autumn (March/April) in areas Q3 and P2 in year t+1, as a measure of recruitment. The fishery limit (10.0 kg/h) and target (25.0 kg/h) catch rates for the spring survey are plotted over the data. Source DPIRD-EGPMF 2019a.

According to WA Fisheries, the fishery has fully recovered from the effects of the marine heat wave that may have affected the structured inshore nursery habitat in recent years (Kangas et al. 2018). WA Fisheries have concluded from the above evidence that the biomass of the stock is unlikely to be recruitment overfished and the stock level is considered sustainable (DPIRD-EGPMF 2019a).

Western King Prawns

Performance against harvest strategy

Banks et al. (2015) reports that catch and catch rate levels from 1989 to 1998 were used as the basis for calculating king prawn target catch ranges of 350 to 500 t and a reference catch rate of 12 kg/hr (range 8 to 14 kg/hr). However, this target catch range has been reviewed due to the apparent negative impacts of increased water temperature on recruitment and with the level of effort having declined for the fishery due to fleet restructures and targeting larger prawns (Kangas et al. 2020). There has been concern for the western king prawn stock as total landings have remained below the acceptable catch range after a 'recovery' of stocks in 2013 from the 2011 heat wave. Elevated water temperature rather than fishing effort appears to be the main cause of the decline in annual landings at current effort levels, however, WA Fisheries have indicated that there may need to be consideration of implementing a small area closure during the spawning season to provide further protection to some of the spawning stock. A catch range based on the last 15 years of production results in a revised catch range of 100-450 t and a mean catch rate range of 8-16 kg/hr. Mean catch rate in 2017 was 5.4 kg/hr, well below the reference catch rate range. Mean catch rate increased to 7.2 kg/hr in 2018 and 7.9 kg/hr in 2019, but still slightly below the reference range. The 2017 western king prawn landings (130 t) were below the target catch range (155 to 230 t). Landings increased to 174 t in 2018 and 194 t, in 2019, within the revised target range.

Western king prawns were fished conservatively in the early part of the season. Fishing effort in the northern area (the main western king prawn fishing grounds) was focused mainly in the latter part of the season (Kangas et al. 2020). Also, in the early part of the season, areas where small size western king prawns were located were closed to fishing to ensure that size and quality were maintained.

The spawning stock index for 2017 of 19.9 kg/hr (commercial catch rates in key western king prawn fishing ground in August and September) was below the target (Figure 4). The value increased to 30.9 kg/hr in 2018 and fell slightly to 30.4 kg/hr in 2019, both above the target level.

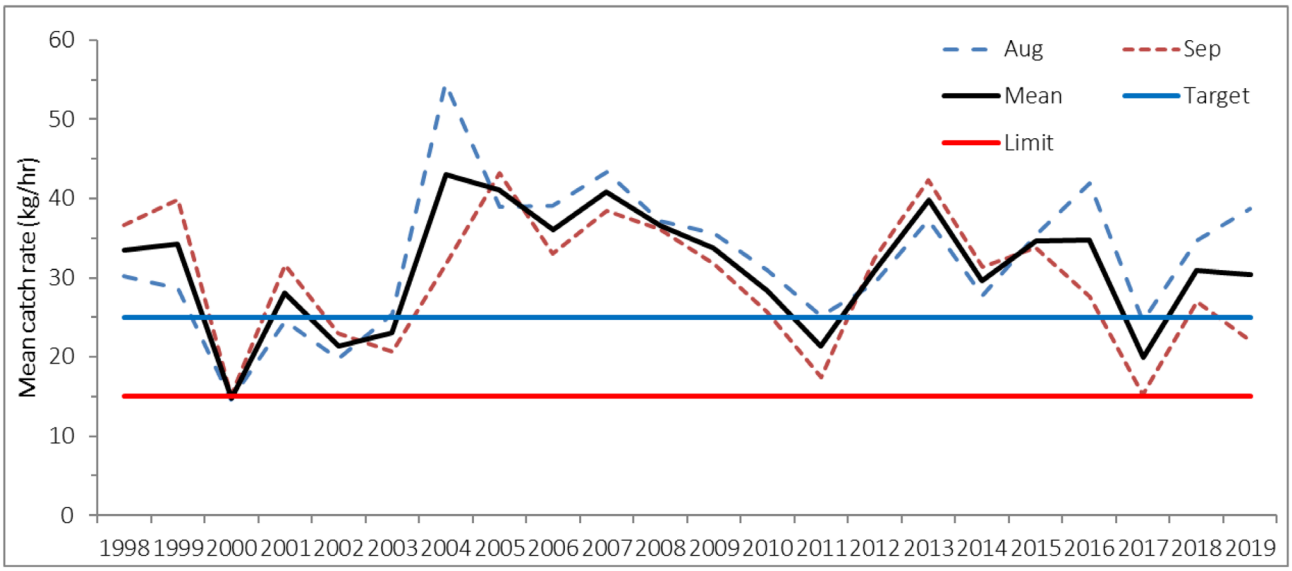

Figure 4. Western king prawn spawning stock index (mean commercial catch rate (kg/hr)) in the key spawning areas (R1 and S2) in Exmouth Gulf during August and September between 1998 and 2019 (Source: Kangas et al. 2020).

A fishery-independent survey of seven sites within the western king prawn grounds in the period August to October commenced in 2015. These sites were considered to represent key western king spawning grounds. The locations of the sites were slightly modified in 2016 and 2017; these sites will continue to be sampled regularly in the future. A longer time series of survey data is required to enable a full comparison of these indices with the commercial indices.

Each year since 2005 fishery-independent recruitment surveys have been undertaken in March and April to assess prawn abundance and size structure. Data from these surveys are used to make catch predictions and

support management decisions, such as spatial-temporal opening of fishing areas (Kangas et al. 2020). The 2017 recruitment index for western king prawn was 23.6 kg/hr, below the target level). In 2018 the index increased to 38.2 kg/hr, above the target level of 30 kg/hr (Figure 5). In 2019, the mean recruitment index was 47.6 kg/hr, well above the target. The catch prediction was 300 t (range 240-360 t), with the 2019 landings of 194 t falling significantly below the predicted catch. The reason for this discrepancy is currently being investigated (Kangas et al. 2020).

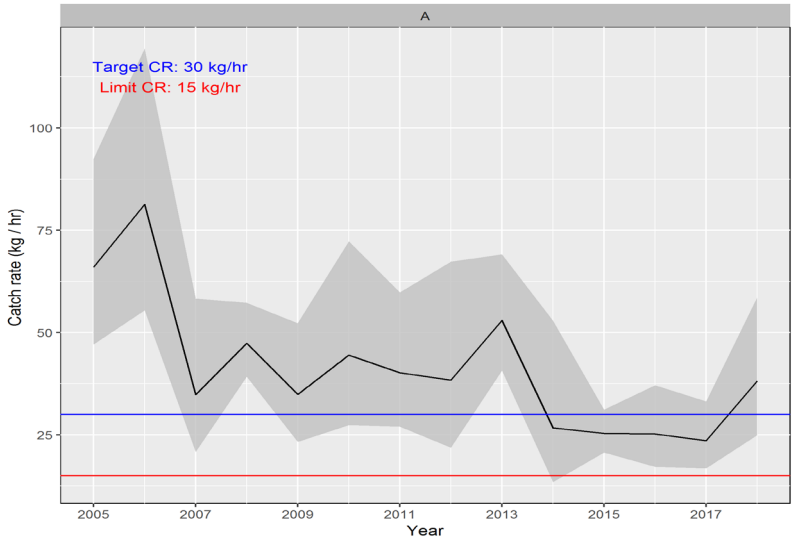

Figure 5. Mean and 95% confidence interval for western king prawn recruitment index in Area A in Exmouth Gulf between 2005 and 2018 (Source: DPIRD-EGPMF 2019b).

WA Fisheries has concluded that the biomass of the stock is unlikely to be recruitment overfished and the stock status is considered sustainable (DPIRD-EGPMF 2019b).

Blue endeavour prawns

Performance against harvest strategy

Blue endeavour prawns were assessed as a Principle 2 species in the original assessment, but were added to the certificate in February 2019 following an expedited assessment and scope extension (Banks and McLoughlin, 2019). Further detail on blue endeavour prawns is provided in Banks and McLoughlin (2019).

Endeavour prawn landings in 2017 were 217 t, within the normal catch range of 120-300 t but a reduction from a high catch of 397 t in 2015. In 2018 the catch increased to 312 t but decreased to 208 t in 2019. The 2017 endeavour prawn adjusted mean annual CPUE of 9.0 kg/hr was significantly above the average mean annual catch rate of 5.6 kg/hr, though much lower than 2015's highest recorded catch rate of 18.0 kg/hr. The 2018 catch rate was 13.0 kg/hr. The 2019 catch rate was 8.5 kg/hr, the lowest since 2014.

Multiple fishery-independent surveys undertaken in March/April each year provide recruitment information for brown tiger and western king prawns, as described in Banks et al. (2015). These surveys also provide recruitment indices for blue endeavour prawns. The timing of recruitment of blue endeavour prawns likely differs from the two other species (with substantial recruitment later in the year), and thus the autumn survey catch rates measure only part of the blue endeavour prawn recruitment (DPIRD-EGPMF 2018). The mean fishery-independent survey catch rates since 1985 do not exhibit any pronounced trend (Figure 6). Catch rates in the period 2012-2014 were low relative to historic levels, possibly associated with environmental effects (2011 extreme marine heatwave) on seagrass areas, important for prawn recruitment. Catch rates have since increased.

Similar to that described above, a time series of fishery-independent catch rates for blue endeavour prawns is available for 1984-2019, from multiple surveys in August, September and October. These were aimed mainly at measuring annual spawning stock levels of brown tiger prawns and western king prawns, but also measured

abundance of blue endeavour prawns. As blue endeavour prawns also commence spawning around this time, the surveys likely provide a useful measure of spawning stock levels for this species.

The mean fishery-independent survey catch rates for surveys conducted in August to October since 1985 do not exhibit any pronounced trend. Catch rates in last three years are well above historic levels. The 2017 mean catch rate was 26.5 kg/hr and in 2018 was 30.6 kg/hr (Figure 6). The 2019 catch rate was 28.5 kg/hr.

WA Fisheries have concluded that the current level of effort is unlikely to cause the stock to become recruitment overfished and stock level is considered sustainable.

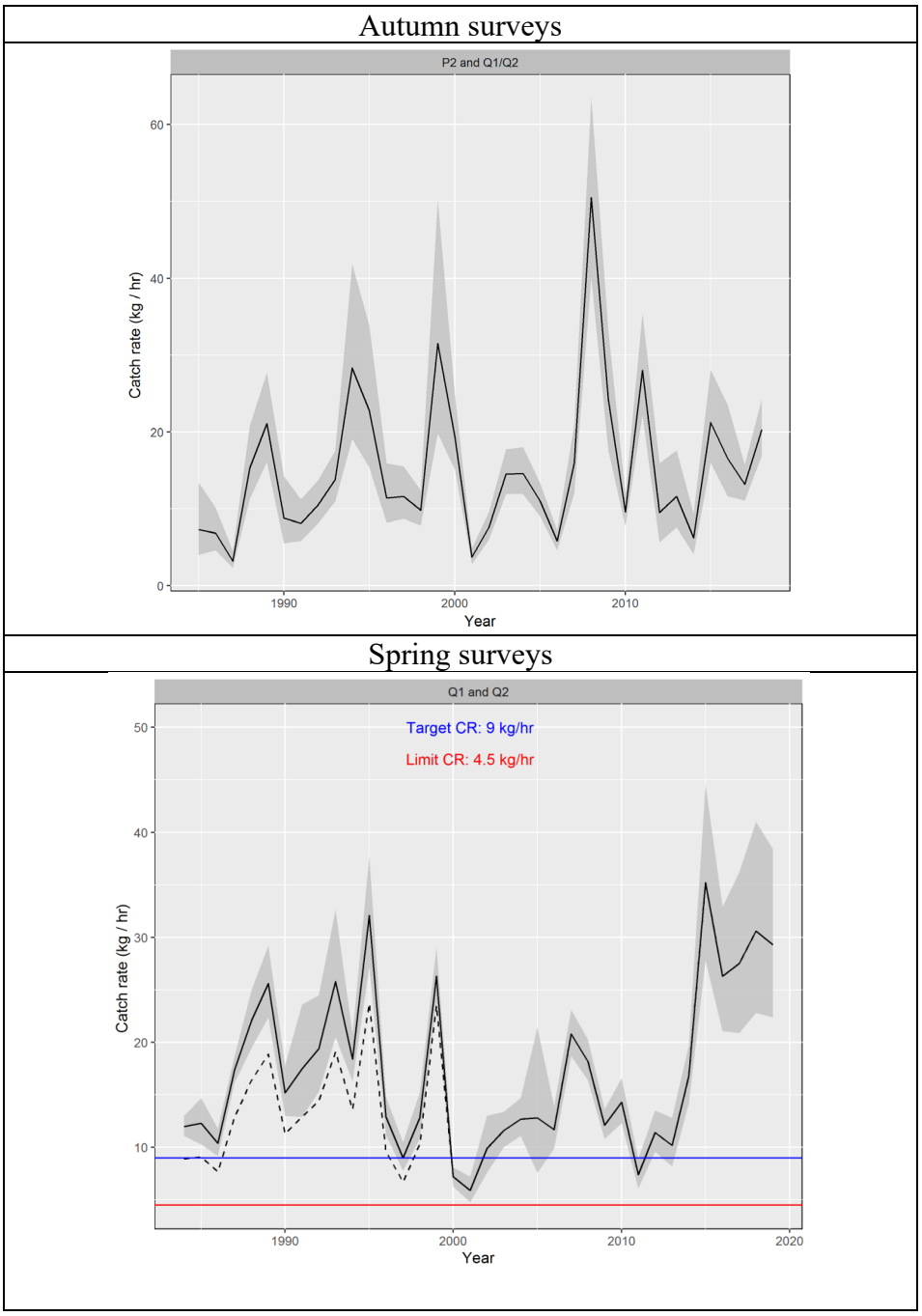

Figure 6. Fishery-independent mean survey catch rates and 95% confidence intervals of endeavour prawns in Exmouth Gulf recorded for surveys conducted in autumn (March/April; 1985 - 2018) in the fishing grounds P2, Q1 and Q2, and in Spring (September/October; 1984 - 2018) in fishing grounds

Q1 and Q2. Note that the 2018 data for the spring surveys are preliminary (Source: DPIRD-EGPMF 2019c and Kangas et al. 2020)).

Summary of performance against harvest strategy indicators for 2019

An assessment against the harvest strategy annual operation performance indicators in 2019 is given in Table 3. Following an assessment against the annual operation performance indicators in the harvest strategy, no changes to the season arrangements are predicted for 2020.

Table 3. Performance of the EGPMF in relation to Harvest Strategy reference levels

Species	Reference level met	2019 level	Control rule
Tiger prawns	Target - Mean catch rate ≥ 25 kg/hr	Mean catch rate 46.2 kg/hr	No change to season arrangements.
King prawns	Target - Mean catch rate ≥ 25 kg/hr	Mean catch rate 30.4 kg/hr	No change to season arrangements.
Blue endeavor prawns	Target – Mean catch rate is ≥ 9 kg/hr	Mean catch rate 28.5 kg/hr	No change to season arrangements.

2.4 Ecosystem Update

DPIRD completed an Ecological Risk Assessment (ERA) of the Exmouth Gulf Prawn Managed Fishery in 2019, with the participation of industry experts, scientists and other stakeholders. The assessment focused on evaluating the ecological impact of the fishery on retained species, bycatch, endangered, threatened and protected (ETP) species, habitats, and the broader ecosystem. ERAs are conducted by the DPIRD as part of its Ecosystem Based Fisheries Management (EBFM) framework and the outputs inform the development and review of harvest strategies (Stoklosa, 2019).

The methodology adopted for the 2019 ERA was based on Fletcher et al. (2002) risk analysis methodology (consequence-likelihood) refined by Fletcher in 2015 (Stoklosa, 2019). E-Systems developed an ERA Workshop Procedure (Stoklosa, 2019) incorporating the adopted ERA methodology. The DPIRD's ERA policy is that the adopted risk analysis methodology is consistently used across all fishery assessments in Western Australia. The Department's risk analysis methodology is consistent with the Australian Standard for risk management (AS ISO 31000:2018) (Stoklosa, 2019).

The DPRID invited various stakeholders to participate in the ERA workshop, including those involved in previous ERAs and those who have expressed an interest in the MSC certification process of the WA fisheries, as well as others identified as having an interest in the proceedings. Stakeholders included individuals, organisations, companies, government agencies and research scientists having an interest and/or technical expertise (Stoklosa, 2019).

Using the risk assessment methodology adopted by the Department, the ERA identified potential threats to the achievement of sustainability objectives for the Fisheries and assessed the risks. The threats for each assessment component were assessed using a consultative and structured workshop procedure (Stoklosa, 2019).

For each assessment component of the fisheries, the consequences of the interaction of fishing activities with ecological components were described, and the existing management and operational measures to control or reduce the consequences or the likelihood of each threat were identified. The consequence rating categories were from 1 to 4 (minor, moderate, high and major) and the likelihood rating categories were also from 1 to 4 (remote, unlikely, possible and likely). The risk was ranked as the product of the two ratings, as illustrated

in the risk matrix in Table 4. The risk matrix is used to rank risk in one of five levels, consistent with the adopted ESD Reporting Framework (Fletcher et al. 2002, Fletcher 2015).

Table 4. Risk ranking matrix

Consequence	Likelihood			
	Remote (1)	Unlikely (2)	Possible (3)	Likely (4)
Minor (1)	Negligible	Negligible	Low	Low
Moderate (2)	Negligible	Low	Medium	Medium
High (3)	Low	Medium	High	High
Major (4)	Low	Medium	Severe	Severe

Source: Stoklosa (2019).

The risk levels are qualitative only and used as a convenient means of classifying risk in five levels: negligible (blue), low (green), medium (yellow), high (pink) and severe (red). While for negligible and low risks no management actions are required, medium risks are considered acceptable if management measures and monitoring are in place. High and sever risks and not considered acceptable and additional management measures are required to reduce the risk (Stoklosa, 2019).

The outcome of the 2019 ERA for EGPMF is presented below along with recent catch and interaction data for each component of the ecosystem.

Retained and Bycatch Species

A summary of recent retained catches in the EGPMF is provided in Table 5 while total catch composition (from recent independent surveys) is presented in Table 6.

Table 5. Retained catches in the EGPMF between 2014 and 2018.

Species	Catch (tonnes)						% of total retained
	2014	2015	2016	2017	2018	Average	
Brown tiger prawns	162.4	433.2	356.0	366.3	391.9	342.0	42%
Western king prawns	170.7	191.7	200.6	130.1	174.3	254.2	31%
Blue endeavour prawns	101.3	396.7	243.8	216.6	312.7	173.5	21%
Coral prawns	5.0	0.3	29.1	24.8	20.4	15.9	2%
Banana prawns	29.1	45.9	21.3	0.2	0.6	19.4	2%
Blue swimmer crabs	1.6	6.6	2.9	4.5	0.9	3.3	0.4%
Bugs	2.8	3.0	4.0	3.7	2.8	3.2	0.4%
Cuttlefish	1.7	0.2	3.3	3.5	7.5	3.2	0.4%
Squid	3.1	1.8	3.6	2.0	2.2	2.5	0.3%
Mantis shrimps	0	0.0	0.1	1.1	1.2	0.5	0.1%
Octopus	0.3	0.2	0.3	0.7	0.3	0.4	<0.1%
Finfish	0.4	0	0.02	0	0	0.1	<0.1%

Source: DPIRD, 2020a.

Table 6. Target (bold blue), other retained (light blue), and discarded species by percentage weight caught in fishery-independent trawl survey shots in Exmouth Gulf in 2014- 2017.

Common name	Species/Family name	% of total
Brown tiger prawns	***Penaeus esculentus***	**34.6**
Endeavour prawns	***Metapenaeus endeavouri***	**11.1**
Western king prawns	***Penaeus latisculcatus***	**8.5**
Whiting	*Sillago* spp.	3.1
Coral prawns	*Metapenaeopsis* spp.	1.1
Cuttlefish	*Sepia* spp.	0.7
Blue swimmer crabs	*Portunus armatus*	0.5
Mantis shrimp	Squillidae	0.2
Banana prawns	*Penaeus merguiensis*	0.1
Squid	Mostly *Photololigo edulis*	0.1
Octopus	*Octopus* sp.	<0.1
Bugs	*Thenus orientalis*	<0.1
Lizardfish	Mostly *Saurida undosquamis*	4.6
Threadfin bream	Mostly *Nemipterus peronei* and *Scolopsis taeniopterus*	4.6
Minor crabs	Mostly *Portunus* spp.	4.2
Goatfish	*Upeneus* spp.	4.1
Trumpeter	*Pelates* spp.	4.0
Flounder	Bothidae	2.5
Flathead	Platycephalidae	2.5
Ponyfish	Mostly *Leiognathus leuciscus*	2.2
Other finfish*		1.6
Dragonets	Callionymidae	1.1
Toadfish	Mainly *Torquigener whitleyi* and L*agocephalus sceleratus*	0.9
Trevallies	Carangidae	0.9
Leatherjackets	Mostly *Paramonacanthus choirocephalus*	0.9
Roach	Mostly *Gerres subfasciatus*	0.6
Other invertebrates*		0.5
Emperors	*Lethrinus* spp.	0.4
Red-barred grubfish	*Parapercis nebulosa*	0.4
Tuskfish	Mostly *Choerodon cephalotes*	0.4
Minor prawns	Penaeidae	0.4
Fusiliers	Mostly *Pterocaesio digramma*	0.4
Catfish	Mostly *Plotosus lineatus*	0.4
Cardinalfish	Mostly *Jaydia poecilopterus*	0.4
Blotched javelinfish	*Pomadasys maculatus*	0.4
Gulf damsel	*Pristotis obtusirostris*	0.4
Scorpionfish	Scorpaenidae	0.3
Herrings, sardines	Clupeidae	0.3
Echinoderms		0.3
White-spotted spinefoot	*Siganus canaliculatus*	0.2
Little jewfish	*Johnius borneensis*	0.2
Rays	Mostly *Gymnura australis*	0.2

Source: DPIRD (2020a)

2019 ERA Results

Of the retained species, the risk from prawn trawl gear to banana prawns was ranked as medium due to a decrease in retained catch in recent years (Stoklosa, 2019). Banana prawns are retained only when abundant, after consecutive years of high rainfall. Exmouth Gulf is the southernmost limit of the distribution of the species, these being caught in the Northern Prawn Fishery (NPF). Banana prawn is a minor species in the EGMPF. No additional corrective actions were suggested for this species.

The risks to all other retained and bycatch species or groups of species assessed were scored as negligible or low and no additional management measures were considered necessary to mitigate the risks. Specific management measures to reduce unwanted catch are in place, the most important being the use of bycatch reduction devices (BRDs) which are mandatory in WA trawl fisheries. Also, monitoring of bycatch is in place; there is a commitment for catch composition surveys at least every five years (DoF, 2014).
The new information did not warrant rescoring of PIs 2.1.1, 2.1.2, 2.1.3, 2.2.1, 2.2.2 and 2.2.3.

Endangered, Threatened and Protected Species

Table 7. Exmouth Gulf Prawn Managed Fishery interactions with ETP species.

Species/Group	2015*	2016*	2017*	2018*	2019**
Dolphins					
Alive		1			
Dead			1***		
unknown					
Total		1	1		
Marine Turtles					
Alive	14	16	35	20	20
Dead	1				
unknown					
Total	15	16	35	20	20
Sea snakes					
Alive	481	1,262	1,436	1,167	944
Dead	71	267	115	81	50
unknown					
Total	552	1,529	1,551	1,248	994
Syngnathids					
Alive	6	15	37	3	5
Dead	0	14	34	1	1
unknown					
Total	6	29	71	4	6
Sawfish					
Alive		11	3	4	13
Dead		9	10	5	
unknown	6			1	
Total	6	20	13	10	13

*source: DPIRD (2020)
**source: Kangas et al (2020)
*** Appeared to have been dead prior to capture

2019 ERA Results

The risk to sawfish was ranked as medium, (Stoklosa, 2019). Although captured in very low numbers on vessels with recirculating seawater hoppers, post-release survival is likely to be low. A significant portion of nearshore waters are closed to trawling and the Fishery complies with the national recovery plan for sawfish species. The risk ranking of medium reflects the uncertainty in the recovery of the species and the potential for public concern. No additional corrective actions were suggested for sawfish species (Stoklosa, 2019). Species identification of sawfish has been integrated into the CMOP and crew education programs (Banks et al. 2019) and it is expected that sawfish mortalities will be reported to species level in the near future. All

sawfish that interacted with the EGPMF in 2019 were reported as returned to water alive. The level of sawfish mortality in this fishery is very low compared to sawfish mortalities in other fisheries (e.g. NPF).

The risks to all other ETPs from EGMPF were ranked as low or negligible and no additional measures were recommended (Stoklosa, 2019).

The new information did not warrant rescoring of PIs 2.3.1, 2.3.2 and 2.3.3.

Habitats and Ecosystem

At the 2019 ERA, EGMPF risk to filter feeding communities was ranked as medium. Between 2012 and 2016 about five to eight percent of fishing occurred on mapped filter feeder communities within the managed fishery area of Exmouth Gulf. Benthic trawling has the potential to damage filter feeder habitat. A significant portion of nearshore waters are closed for trawling, largely protecting the distribution and abundance of filter feeding communities in Exmouth Gulf (Stoklosa, 2019).

The Stakeholder Working Group could not agree on the likelihood of filter feeding communities exposed to moderate consequences. The rationale for scoring the likelihood varied from unlikely to possible and the likelihood of possible was recorded in the ERA Workshop Record (Attachment 2), subject to the review of existing data. No additional corrective actions were suggested for trawling activities (Stoklosa, 2019). Only less than 1.5% of the range of filter feeder habitat in Exmouth Gulf is fished with a medium fishing intensity (cumulatively over the period 2012-2016), while the rest of the overlapping area (<7% of the habitat's range) is fished at low intensity.

The new information did not warrant rescoring of PIs 2.4.1, 2.4.2, 2.4.3, 2.5.1, 2.5.2 and 2.5.3.

2.5 Governance Update

Changes or additions/deletions to regulations.

There have been no important changes to the management of the fishery or regulation since re-certification. The Draft Aquatic Resources Act remains pending.

Consultation.

The Stakeholder Engagement with non-fisher stakeholders continues. Below is a summary of fishery specific consultation during 2019.

- The Department continues with the Annual Management Meeting between the Department, WAFIC and industry.
- Fishery-specific stakeholder lists have been developed in an effort to implement the new SEG and for each stakeholder group on the list the 'area of interest' and 'level of interest' has been described.
- The governing bodies of the State Marine Park and World Heritage Areas relevant to both fisheries (Conservation and Parks Commission, Department of Biodiversity, Conservation and Attractions (DBAC), the two World Heritage Advisory Committees), and the Shires of Shark Bay and Exmouth have been identified as key (non-fisher) stakeholders.
- The Department has established the key contacts within these stakeholder groups to develop processes for opportunity to be involved in or informed of management decisions where relevant.
- A number of discussions were held with staff relevant to the governing bodies of the relevant State Marine Park and World Heritage Areas to develop strategies for better collaboration and communication with these key stakeholders going forward.
- The Department attends the joint Ningaloo Coast and Shark Bay World Heritage Advisory Committee

Meeting held in Carnarvon on to brief the committees regarding the management of the SBPMF and EGPMF and ongoing communication with these committees.

- The trawl team has liaised with Recfishwest to discuss priorities and in-season fishing arrangements that may be of interest to recreational fishers.

2.6 Monitoring, Control and Surveillance Update

The annual average compliance rate for the EGPMF between 2015/16 and 2019/20 has remained high 98.68 %. No infringements were recorded in the operational periods 2018/2019 and 2019/2020. Based on the weight-of-evidence, the long-term compliance rate, there is no evidence of systematic non-compliance by the licensees and skippers in the EGPMF, nor is there evidence that the existing (negligible) level of non-compliance in the past five years is a risk to target prawn stocks or ecosystem components.

2.7 Personnel changes in science, management or industry (to evaluate impact on the management of the fishery)

There have been no changes to personnel since the 3rd audit of the fishery.

2.8 Potential changes to the scientific base of information, including stock assessments

There are no potential changes to the scientific base of information which affect the certification of the fishery.

2.9 Traceability Update

There have been no changes to the traceability arrangements for of product from the EGPMF.

2.10 References

Banks, R., K. McLoughlin and Trumble, R.J. (2015). Full assessment Exmouth Gulf prawn trawl fishery public certification report. Prepared for M.G. Kailis. Pty Ltd. Prepared by MRAG Americas, Inc. October 22, 2015. 435pp. Available at: https://fisheries.msc.org/en/fisheries/exmouth-gulf-prawns/@@assessments.

Banks, R. and McLoughlin, K. (2019). Exmouth Gulf Prawn Managed Fishery, Blue endeavour prawn (*Metapenaeus endeavouri*), Expedited Principle 1 Scope Extension Assessment, Final Report and Determination. January 2019. https://fisheries.msc.org/en/fisheries/exmouth-gulf-prawns/@@assessments.

Banks, R., McLoughlin, K. and Zaharia, M. (2019) Exmouth Gulf Prawn Managed Fishery MSC Surveillance Report # 3. Prepared for the MG Kailis Group of Companies. MRAG Americas, Inc. April 2019. Available at: https://fisheries.msc.org/en/fisheries/exmouth-gulf-prawns/@@assessments.

DOF (2014). Exmouth Gulf Prawn Managed Fishery Bycatch Action Plan 2014 - 2019. Department of Fisheries, WA. Available at: https://www.fish.wa.gov.au/Documents/management_papers/fmp266.pdf.

Department of Primary Industries and Regional Development (DPIRD). (2020). Ecological Risk Assessment of the Exmouth Gulf Prawn Managed Fishery.

DPIRD-EGPMF. (2019a). Brown Tiger Prawn – Exmouth Gulf Prawn Managed Fishery, February 2019. MSC certification. Audit 3 brown tiger prawn assessment. Document provided by WA Department of Primary Industries and Regional Development.

DPIRD-EGPMF. (2019b). Western King Prawn – Exmouth Gulf Prawn Managed Fishery, February 2019. MSC certification. Audit 3 western king prawn assessment. Document provided by WA Department of Primary Industries and Regional Development.

DPIRD-EGPMF. (2019c). Blue Endeavour Prawn – Exmouth Gulf Prawn Managed Fishery, February 2019. MSC certification. Audit 3 blue endeavour prawn assessment update. Document provided by WA Department of Primary Industries and Regional Development.

Fletcher, W.J., J. Chesson, M Fisher, K.J. Sainsbury, T. Hundloe, A. Smith and B. Whitworth. (2002). *National ESD reporting framework for Australian fisheries: The 'how to' guide for wild capture fisheries*. FRDC Project 2000/145, Canberra.

Fletcher, W.J. (2015). *Review and refinement of an existing qualitative risk assessment method for application within an ecosystem-based fisheries management framework*. ICES Journal of Marine Science 72: 1043-1056.

Kangas, M.I., Sporer, E.C., Wilkin, S., Koefoed, I, Cavalli, P and Pickles, L. (2017). Gascoyne Exmouth Gulf Prawn Resource Status Report. 2017. In: Status Reports of the Fisheries and Aquatic Resources of Western Australia 2016/17: The State of the Fisheries eds. D.J. Gaughan and K. Santoro. Department of Primary Industries and Regional Development, Western Australia. pp. 88-93.

Kangas, M., Wilkin, S., Koefoed, I. and Sanders, C. (2018). Exmouth Prawn Managed Fishery Season Report, 2017, 7 September 2018. Compiled by Invertebrate Trawl Research. WA Department of Primary Industries and Regional Development.

Kangas, M., Wilkin, S., Koefoed, I., Sanders, C. (2020). Exmouth Gulf Prawn Managed Fishery Final Season Report. DPIRD. 23pp.

Stoklosa, R. (2019). *Ecosystem Based Fishery Management—Ecological Risk Assessment of the Exmouth Gulf Prawn Managed Fishery*, prepared for the Department of Primary Industries and Regional Development, Fishery, Western Australia. E-Systems, Hobart.

2.11 Version details

Table 8. Fisheries program documents versions

Document	Version number
MSC Fisheries Certification Process	**Version 2.1**
MSC Fisheries Standard	**Version 2.0**
MSC General Certification Requirements	**Version 2.4.1**
MSC Surveillance Reporting Template	**Version 2.01**

3 Results

3.1 Surveillance results overview

3.1.1 Summary of conditions

Table 9. Summary of conditions

Condition number	Condition	Performance Indicator (PI)	Status	PI original score	PI revised score
1	Demonstrate that target reference points are consistent with B_{MSY} or a surrogate.	1.1.2 – Brown tiger prawn	Closed at the third surveillance audit	90	Not revised
2	Demonstrate that target reference points are consistent with B_{MSY} or a surrogate.	1.1.2 – Western king prawn	Closed at the third surveillance audit	90	Not revised
3	Provide sufficient data to detect any increase in risk to main bycatch species.	2.2.3	Closed at the second surveillance audit	90	Not revised
4	Demonstrate that direct effects are highly unlikely to create unacceptable impacts to ETP species, with emphasis on sea snakes and sawfish.	2.3.1	Closed at the second surveillance audit	80	Not revised
5	Provide sufficient information to allow fishery related mortality and the impact of fishing to be quantitatively estimated for ETP species. Provide relevant information sufficient to determine whether the fishery may be a threat to	2.3.3	Closed at the second surveillance audit	85	Not revised

	protection and recovery of the ETP species, especially sea snakes and sawfish.				
6	Provide sufficient data to allow the nature of the impacts of the fishery on habitat types to be identified and provide reliable information on the spatial extent of interaction, and the timing and location of use of the fishing gear. Collect sufficient data to detect any increase in risk to habitat.	2.4.3	Closed at the third surveillance audit	95	Not revised
7	Demonstrate that the consultation process provides opportunity for all interested and affected parties to be involved.	3.1.2	Closed at the first surveillance audit	100	Not revised

3.1.2 Total Allowable Catch (TAC) and catch data

Table 10. Catch data (this fishery does not operate with a TAC) – Brown Tiger Prawn

TAC	Year	**n/a**	Amount	**n/a**
UoA share of TAC	Year	**n/a**	Amount	**n/a**
UoA share of total TAC	Year	**n/a**	Amount	**n/a**
Total green weight catch by UoC	Year (most recent)	2019	Amount	335 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	438 t

2019 data are preliminary.

Table 11. Catch data (this fishery does not operate with a TAC) – Western King Prawn

TAC	Year	**n/a**	Amount	**n/a**
UoA share of TAC	Year	**n/a**	Amount	**n/a**
UoA share of total TAC	Year	**n/a**	Amount	**n/a**
Total green weight catch by UoC	Year (most recent)	2019	Amount	878 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	652 t

2019 data are preliminary.

Table 12. Catch data (this fishery does not operate with a TAC) – Blue Endeavour Prawn

TAC	Year	**n/a**	Amount	**n/a**
UoA share of TAC	Year	**n/a**	Amount	**n/a**
UoA share of total TAC	Year	**n/a**	Amount	**n/a**
Total green weight catch by UoC	Year (most recent)	2019	Amount	878 t
Total green weight catch by UoC	Year (second most recent)	2018	Amount	652 t

2019 data are preliminary.

3.1.3 Recommendations

There are no recommendations.

3.2 Progress against conditions

All conditions were closed by the third surveillance audit.

3.3 Client Action Plan

There are no revisions to the Client Action Plan.

3.4 Re-scoring Performance Indicators

No Performance Indicators have been rescored.

4 Appendices

4.1 Evaluation processes and techniques

4.1.1 Site visits

The Exmouth Gulf Prawn Managed Fishery trawl fishery, was certified on 20th October 2015 with UoCs Western king prawn (*Penaeus (Melicertus) latisulcatus*) and Brown tiger prawn (*Penaeus esculentus*). Blue endeavour prawn (*Metapenaeus endeavouri*) was added to the certificate on 26 February 2019 following a scope extension. This surveillance audit was held offsite due to the COVID 19 outbreak in accordance with a derogation available from the MSC. Surveillance discussions have covered all issues as laid out in Annex CG of the MSC Certification Requirements including the principal changes occurring to the fishery since the 3rd surveillance audit.

This 4th annual audit covers the period from re-certification from April 2019 to April 2020. The off-site audit took place on 26 May 2020. No requests for direct consultation were received from Stakeholders. A list of stakeholders contacted is provided in Appendix 3. Additional information was provided by Dr George Kailis,(MGK), Dr Mervi Kangas and Dr Mathew Houston of Western Australia Fisheries Research Division, DPIRD, and Patrick Cavalli, Resource Management Division.

A wide range of stakeholders were contacted including Government organisations, NGOs, and indigenous groups, and invited to submit comments. The report text above provides details which address the points raised. New information provided does not warrant any changes to the scoring.

Exmouth Gulf Prawn Managed Fishery Annual Assessment Meeting Attendees 26 May 2020

Off-site participants in the site visit were:

Richard Banks	MRAF Assessor (Team Leader)
Kevin McLoughlin	MRAG Assessor
Mihaela Zahara	MRAG Assessor
George Kailis	MG Kailis
Shiree Blazeski	DPIRD
Patrick Cavalli	DPIRD
Scott Evans	DPIRD
Mathew Houston	DPIRD
Mervi Kangas	DPIRD
Natalie Moore	DPIRD
Sharon Wilkin	DPIRD
Observers	
Felicity Horn	Shark Bay Prawn Trawler Operatprs' Association
Geoff Diver	Sea Harvest Fishing Conmpany (SHFC)
Scott Razga	SHFC

4.1.1 Stakeholder participation

Stakeholders contacted

Stakeholder category	Organisation	Key contact	Email
State Government Department	Department of Biodiversity, Conservation and Attractions (DBCA)	Fran Stanley	fran.stanley@dbca.wa.gov.au
		Daniel Coffey	daniel.coffey@dbca.wa.gov.au

Commonwealth Department	Department of the Environment and Energy (DotEE)	Kerry Cameron	kerry.cameron@environment.gov.au
Peak industry body (commercial fishers)	WAFIC	Guy Leyland	gleyland@wafic.org.au
Peak industry body (recreational fishers)	Recfishwest	Andrew Rowland	andrew@recfishwest.org.au
	Ningaloo Coast WH Advisory Committee	Tegan Gourlay	tegan.gourlay@dbca.wa.gov.au
Conservation Sector NGO's	Cape Conservation Group		info@ccg.org.au
	Conservation Council of Western Australia	Piers Verstegen	conswa@conservationwa.asn.au
	WWF	Jo-anne McCrae	JMcCrea@wwf.org.au
	Wilderness Society	Jenita Enevoldsen	Kit.Sainsbury@wilderness.org.au
Regional Aboriginal Corporation	Yamatji Marlpa Aboriginal Corporation	Jose Kalpers	jkalpers@ymac.org.au
Native Title Parties	Gnulli Working Group	Maimbo Chilala	mchilala@ymac.org.au
Aboriginal community groups	Baiyungu Aboriginal Corporation	Paul Baron	baiyungu@westnet.com.au
NRM regional body and relevant affiliate groups	Rangelands NRM	Quinton Clasen	quintonc@rangelandswa.com.au
Regional Development Commission	Gascoyne Development Commission	Gavin Robins	gavin.robins@gdc.wa.gov.au
Local Government	Shire of Exmouth	Turk Shales	Cr_Shales@exmouth.wa.gov.au
Tertiary institutions	Curtin University	Euan Harvey	Euan.Harvey@curtin.edu.au
	Murduch University	Neil Loneragan	N.Loneragan@murdoch.edu.au
	University of Western Australia	Simon Allen	simon.allen@uwa.edu.au
	CEBEL/Flinders University	Tim Hunt	tim.hunt@flinders.edu.au
Research Institutions	Australian Institute of Marine Science	Mark Meekan	m.meekan@aims.gov.au
	Exmouth Visitor Centre (which is an association with tourism members)	Ben Knaggs	communications@exmouthwa.com.au
DPIRD Regional Services	DPIRD (Geraldton office)		
	DPIRD (Exmouth office)	Graeme Meinema	graeme.meinema@dpird.wa.gov.au
	DPIRD (Geraldton office)	Mick Kelly	mick.kelly@dpird.wa.gov.au
DPIRD Fisheries Managers	DPIRD (Perth HO)	Patrick Cavalli	patrick.cavalli@dpird.wa.gov.au
		Rebecca Oliver	rebecca.oliver@dpird.wa.gov.au
DPIRD Research Division	DPIRD (Hillarys)	Mervi Kangas	mervi.kangas@dpird.wa.gov.au
DPIRD	DPIRD (HO and Hillarys)	Kim Walsh (HO)	Kim.walshe@dpird.wa.gov.au
		Dan Gaughan (Hillarys)	daniel.gaughan@dpird.wa.gov.au
		Mat Hourston (Hillarys)	Mathew.Hourston@dpird.wa.gov.au
		Lynda Bellchambers	lynda.bellchambers@dpird.wa.gov.au
MSC	MSC (WA)	Matt Watson	matt.watson@msc.org

5.2 Revised Surveillance Program

Table 13. Fishery surveillance program				
Surveillance level	Year 1	Year 1	Year 3	Year 4
	February 2017	February 2018	February 2019	May 2020

Table 14. Timing of surveillance audit			
Year	Anniversary date of certificate	Date of surveillance audit	Rationale
4	October 2019	May 2020	DPIRD reorganisation requiring a delay in the availability of new information

Table 15. Timing of surveillance audit			
Year	Surveillance activity	Number of auditors	Rationale
4	Off site audit	3	COVID 19 dispensation

5.3 **Harmonised fishery assessments**

Table 16. Overlapping Fisheries		
Fishery name	Certification status and date	Performance Indicators to harmonise
Peel Harvey Estuarine fishery: Recreational and Commercial blue swimmer crab and Commercial sea mullet	Jun 2016 – Jun 2021	3.1.1, 3.1.2, 3.1.3
Western Australia Octopus Fishery	Oct 2019- Oct 2024	3.1.1, 3.1.2, 3.1.3
Western Rock Lobster	May 2017-May 2022	3.1.1, 3.1.2, 3.1.3
Western Australia Abalone Fishery	April 2017-April 2022	3.1.1, 3.1.2, 3.1.3
Shark Bay Prawn Trawl	Oct 2015-Oct 2020	3.1.1, 3.1.2, 3.1.3
Australia Silver-lipped Pearl oyster	6 Sept 2017 - 25 Sept 2022-	3.1.1, 3.1.2, 3.1.3 (WA only)